(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
21 February 2002 (21.02.2002)

PCT

(10) International Publication Number
WO 02/14170 A1

(51) International Patent Classification[7]: B65D 41/34

(21) International Application Number: PCT/TR00/00046

(22) International Filing Date: 14 August 2000 (14.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant and
(72) Inventor: ÖZTÜRK, Günay [TR/TR]; Altunizade Ismail Pasa Sok. No:9, Daire: 5, Üsküdar, Istanbul (TR).

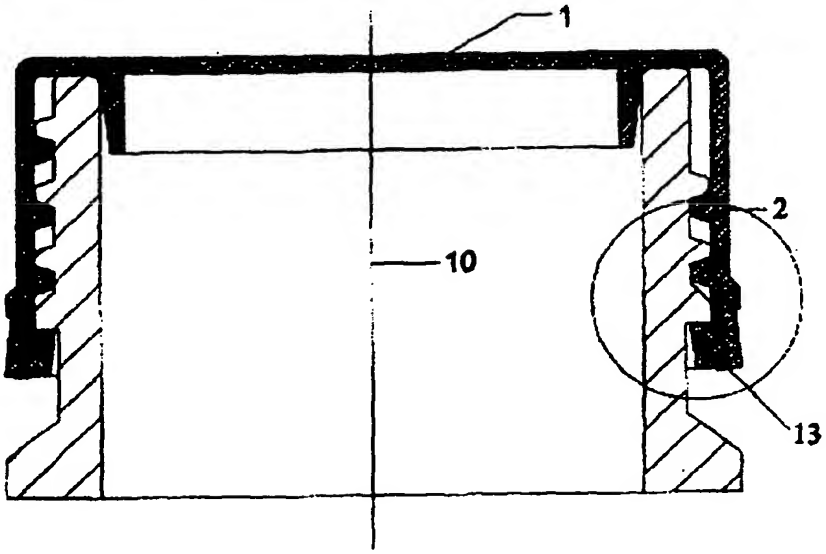
(74) Agent: ÜNVER, M., Attila; Sehit Cetin Görgü Sok., No:10/3, Maltepe, Ankara (TR).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SEAL BANDED LID



(57) Abstract: New and distinguished characteristic of this lid breaking of seal feathers band (3). In broken part (12) there is only seal feathers band. There is no separate safety band. Feathers band hanging on lid bottom edge is extended towards lid base. When the lid is placed on the bottle, thinned (6) and thick tips (7) of feathers overlays on the dome on the bottle neck both from external diameter and bottom edge. During placing of lid on the bottle, breaking of thin tips of seal feathers band was prevented by resting on the circular step inside the lid. Feathers were placed with a right angle (18) with respect to radial axis of the lid. Therefore, if lid is wanted to open seal band is provided to be broken easily and quickly.

WO 02/14170 A1

DESCRIPTION

SEAL BANDED LID

Technical field that the inventionis interrelated and known situation of technique: It is used for closing and sealing bottles made of any kind of material with plastic lid during filling. Presently used competition seal banded lids are broken partially or completely or it is opened with lid when it is wanted to open by end-user. Or the seal lid can be taken out of the bottle without breaking seal band for the purpose of sabotage.

Technical problems that the invention aims to solve : To eliminate problems related to the partial or complete opening of seal band with lid or taking the seal band without breaking out of the bottle.

Description of figures:

Figure 1 : Cross-sectional view of seal banded lid on the bottle.

Figure 2 : Closed figure of seal band locking jaws.

Figure 3 : Cross-sectional view of seal banded lid.

Figure 4 : Figure of feathers band.

Figure 5 : Partial image of feathers band.

Figure 6 : Figure of feathers band.

Figure 7 : Windows showing if feathers band exists on the lid.

Meanings of part numbers mentioned in the figures :

1.Lid Base

2.Upper Sid of Lid

3.Seal Feathers Band

4.Circular Step

5.Lower Side of Lid

6.Thin Tip of Feather

7.Thick Tip of Feather

8.Lid Lower Circle

9.Dome on the Bottle Neck

10.Lid Axis

11.Uneasily Broken Material Bridge

12.Easily Broken Material Bridge

13.Feathers

14.Thinned Feathers

15.Center of Lid

16.Uncoupled Part

17.Alternative Breaking Zone

18.Angle B with Respect to Radial Axis of Lid

19.Angle with Respect to Lid Axis

20.Axis of Easily Breaking Material

21.Window Showing Sealing Band

22.Edge Simplifying Installation of Lid on the Bottle.

Description of Invention : Structure of seal band has been designed different than known competitions.

When invention lid is turned to open, band of sealing feathers (3) is forced to move from lid bottom side (5), easy breaking material bridge is torn.

Broken seal feathers band (3) indicates that lid was opened. Seal feathers band (3) of lids to be used in single-use and multi-use bottles are designed in different ways. For the lids manufactured for multi-use bottles; lid is broken bounded to its bottom side (5) by means of shortened feathers (14). In single-use bottles; seal feathers band is broken completely from lid bottom side and it remains in the form of a ring fixed on the bottle neck.

Seal feathers band (3) is located with an angle alpha (1) with respect to axis (10), through the lid base (1) by holding with easy breaking material bridges (12) to bottom side of the lid (5). Inner membrane conical structure formed because of appropriaterelying of seal feathers band (3) onto lid bottom circle (8) provides easy placing of lid to the bottle.

Seal feathers band (3) is radially pushed towards to the inner diameter of the lid by pressure of neck of bottle during installation of lid to bottle. During this time, thinned tips (6) and thick tips (7) of feathers band prevent breaking of weak connections of feathers (12) by laying on the circular step (4) inside the lid during installation.

Thanks to the conical shape of the lower circle (8) of the lid, during installation to the bottle, lid easily passes the dome (9) on the neck of the bottle. Radial force applied to feathers during installation of lid to the bottle causes the lid to pass the dome by

pressure by stretches bottom circle of lid (8) to outwards. It suppress thin tips of feathers (6) to outwards of dome on the neck of bottle (9).

Thin tips of feathers (6) waiting under pressure prevent reverse turning (13) of feathers (2) without breaking is during opening of lid. This invention eliminated probability of removal of seal feathers (3) band without breaking.

Axis of feathers lined as symmetric and asymmetric on bottom side of lid (5) inclined with angle alpha (19) with respect to lid axis.

Feathers are lined by a slope with beta angle (18) with respect to radial axis of the lid. Seal feathers band provides smooth installation of lid without any friction which maybe found on bottle neck the during installation. Since material bridges (12) to be broken are located right lower sides of feathers (20) the beta angles (18) of feathers start to decrease because tongue tips (6) compressed between dome of bottle (9) and the lid during rotational opening are fixed. Since the tips of feathers resting on the dome (13) is fixed with right angle with respect to radial axis (15) of the lid it cannot advance. Lower right sides of feathers stretches away towards the bottom from lower circle (8) of the lid. Advancing movement of lid is added to this movement. Thus, breaking of seal feathers band (13) is provided with lesser revolution. According to the known situation of tecnique, feathers are torn and lose their functions during opening of lid. And tearing distance is increased. Its installation to bottle is more difficult. When lid is wanted to be opened, band can not be broken easily and fast.

Method of Application of Invention to the Industry: Closing force (torque) applied during closing by turning the lid after filling is decreased by different design of seal band. When the lid is wanted to be opened, opening of seal band without tearing and opening the lid for the purpose of sabotage have been prevented.

CLAIMS

Coupling of thin tips (6) of feathers (13) in seal feathers band (3) holding with easily broken thin material bridge (12) to the lower circle of the lid (8) both to the bottom (7) and outer diameter (6) of the dome (9) on the neck of bottle by extending towards the lid base 81). Thus, during opening of lid of seal feathers band (3), refolding without breaking/tearing is prevented. Prevention of loose of the function of the feathers (3) during opening by inclination of the feathers by designing the same with a beta angle (18) with respect to radial axis of the lid. Binding of feathers (13) to bottom tip of lid (5) with easily broken material bridge (12), Connection of feathers with uneasily broken material bridge (11) by symmetric and asymmetric lining of the same on inner side (8) of bottom circle of lid. Resting of seal feathers band (3) within the lid by a circular step (4) to prevent breaking of seal feathers band during placing of lid to bottle by rotation. Strong connection of feathers band to bottom side (5) of the lid hence it cannot be broken. Taking the breakeble section to the mid part of lid (17) as an alternative.

Beta angle of feathers (18) starts to decrease because of rotational force applied to feathers during opening movement of lid by placing broken material bridge (12) to lower right side of feathers (20), the tips of feathers laying on the dome cannot advance (9). It advances towards the outside from the lower right side (5) of the lid. Advancing movement of lid is added to this movement. Thus, shortining of the breaking distance faster and easier breaking in much less rotation could be provided.

Easy installation of lid to bottle (22) with lower circle of lid by forming an angle alpha (19). Sticking of seal band by holding from the thinned lids (14) lined on the lower side of the lid during lid opening if not easily broken material bridge (11) between un-thinned feathers is removed (16). Windows/openings (21) showing if seal band is open when the lid has been placed on the bottle.

FİG. 1

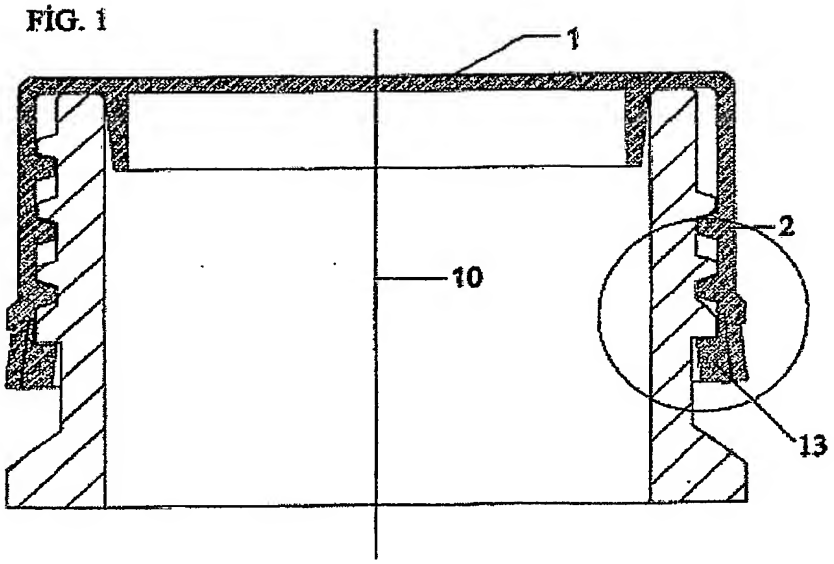


FİG. 2

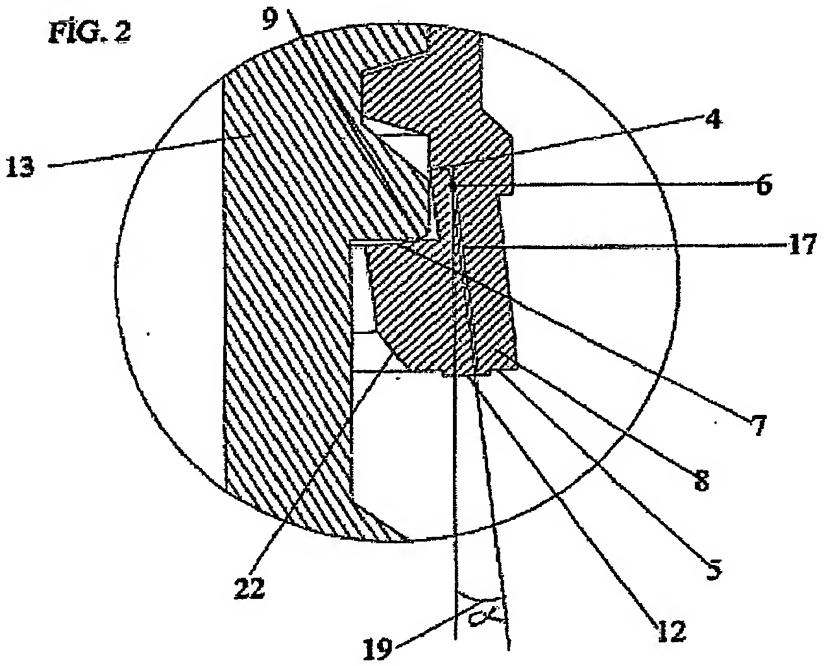


FİG. 3

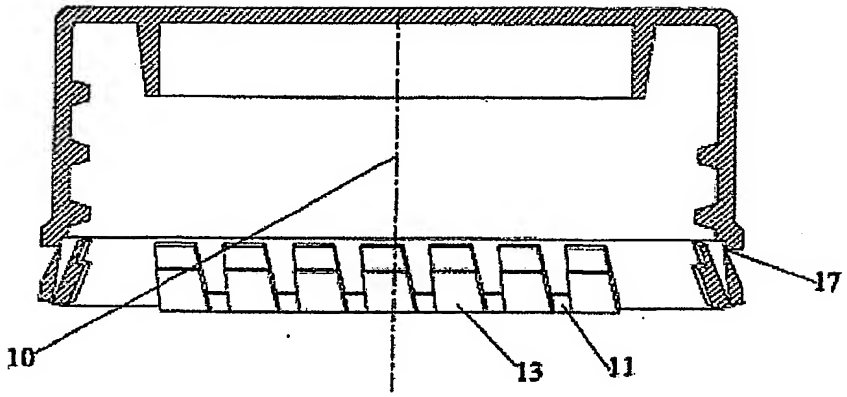


FİG. 4

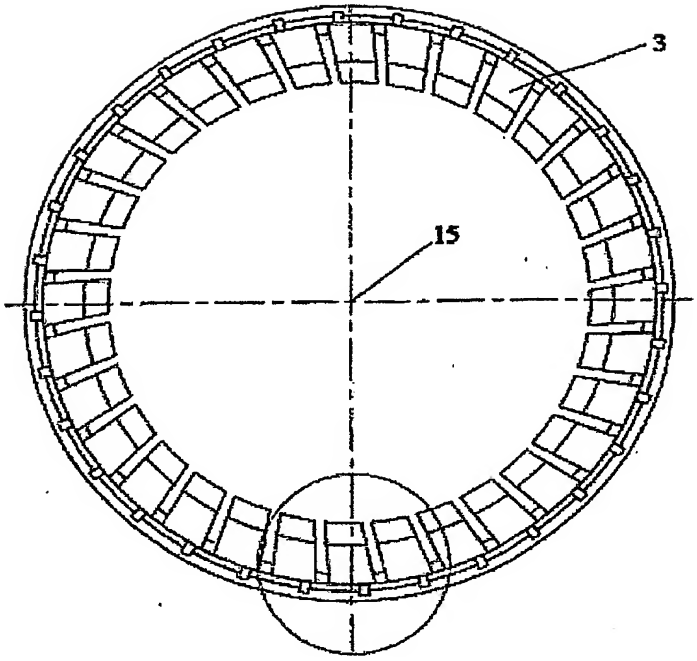


FİG. 5

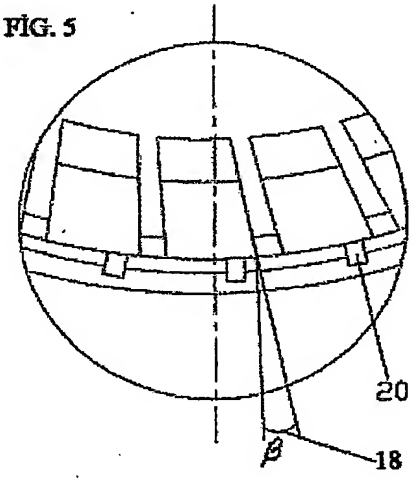


FİG.6

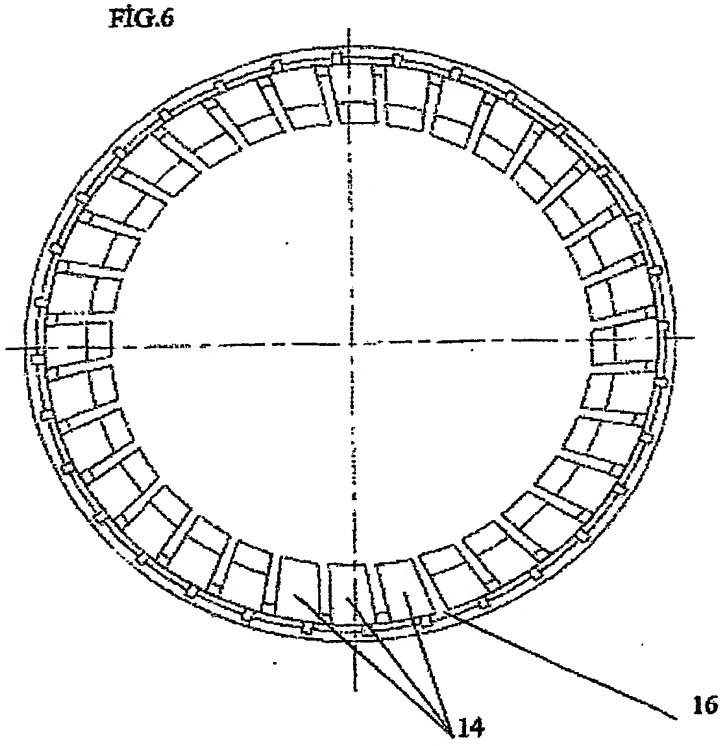
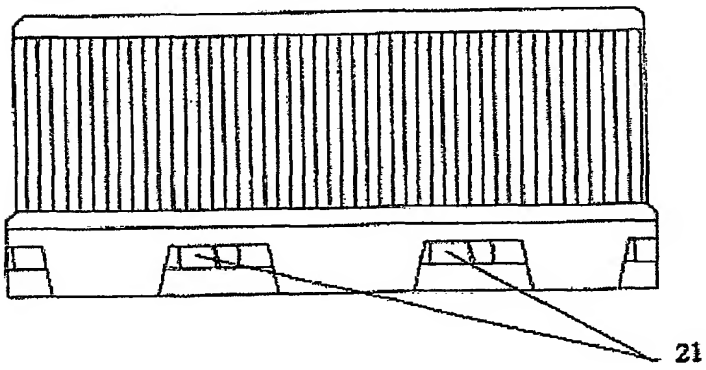


FİG.7



INTERNATIONAL SEARCH REPORT

International application No.
PCT/TR 00/00046

CLASSIFICATION OF SUBJECT MATTER

IPC[7]: B65D 41/34

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC[7]: B65D, B29C, B26F,

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, PAJ, EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5755347 A (Ingram) 26 May 1998 (26.05.98) *fig. 2-7,21-34.*	1
A	EP 1008530 A1 (Owens-Illinois) 14 June 2000 (14.06.00) *fig. 2-16a.*	1
A	US 4595110 A (Herr) 17 June 1986 (17.06.86) *fig. 1-8.*	1
A	US 4572388 A (Luker) 25 February 1986 (25.02.86) *fig. 1-13.*	1

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
„A" document defining the general state of the art which is not considered to be of particular relevance
„E" earlier application or patent but published on or after the international filing date
„L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
„O" document referring to an oral disclosure, use, exhibition or other means
„P" document published prior to the international filing date but later than the priority date claimed

„T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
„X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
„Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
„&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 April 2001 (27.04.2001)	7 June 2001 (07.06.2001)
Name and mailing adress of the ISA/AT Austrian Patent Office Kohlmarkt 8-10; A-1014 Vienna Facsimile No. 1/53424/535	Authorized officer WERNER Telephone No. 1/53424/357

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/TR 00/00046

Patent document cited in search report			Publication date	Patent family member(s)			Publication date
EP	A1	1008530	14-06-2000	AU	A1	63078/99	08-06-2000
				BR	A	9907401	15-08-2000
				CN	A	1258625	05-07-2000
				JP	A2	00168810	20-06-2000
				US	A	6119883	19-09-2000
US	A	4572388	25-02-1986	CA	A1	1257150	11-07-1989
				US	E	32879	28-02-1989
US	A	4595110	17-06-1986	AU	A1	24452/84	23-08-1984
				AU	A1	19011/88	06-10-1988
				AU	B2	594245	01-03-1990
				CA	A1	1285241	25-06-1991
				DE	C0	3471072	16-06-1988
				DE	C0	3482709	16-08-1990
				EP	A2	117104	29-08-1984
				EP	A3	117104	22-05-1985
				EP	A1	235870	09-09-1987
				EP	A2	239176	30-09-1987
				EP	A3	239176	14-10-1987
				EP	B1	117104	11-05-1988
				EP	B1	235870	11-07-1990
				EP	B2	235870	30-11-1994
				US	A	4506795	26-03-1985
				US	A	4595547	17-06-1986
US	A	5755347	26-05-1998	AT	E	107597	15-07-1994
				AU	B1	600624	16-08-1990
				BR	A	8906149	07-05-1991
				CA	AA	2001023	27-01-1991
				DE	C0	68916425	28-07-1994
				DE	T2	68916425	13-10-1994
				EP	A1	410059	30-01-1991
				EP	B1	410059	22-06-1994
				ES	T3	2056226	01-10-1994
				JP	A2	3069460	25-03-1991
				JP	B4	8015912	21-02-1996
				MX	B	165642	25-11-1992
				US	A	5090788	25-02-1992
				ZA	A	8908183	28-12-1990
				US	A	5370520	06-12-1994
				US	A	5219507	15-06-1993
				US	A	5310069	10-05-1994
				US	A	5462184	31-10-1995
				US	A	5611446	18-03-1997
				AU	A1	56311/98	03-09-1998
				AU	B2	730107	22-02-2001
				BR	A	9800213	01-06-1999
				CA	AA	2230152	27-08-1998
				CN	A	1200345	02-12-1998
				EP	A1	861792	02-09-1998
				JP	A2	10316155	02-12-1998
				JP	B2	2902391	07-06-1999
				SG	A1	60209	22-02-1999
				ZA	A	9801614	31-08-1998